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CURRENT LITERATURE

BOOK REVIEWS

Cretaceous plants

The second part of the British Museum *Catalogue of Cretaceous plants*, by STOPES,[1] treats of the flora of the so-called Lower Greensand, which is known on the Continent as the Aptian stage of the Lower Cretaceous. The beds of this age which have escaped erosion and are available for study are nearly all typically marine deposits, with only such traces of terrestrial vegetation as withstood the maceration and trituration of the sea. Consequently, the flora of the Lower Greensand has hitherto been supposed to have been essentially the same as that of the older and better known Wealden deposits. Thus, with the exception of the classic *Bennettites Gibsonianus* of CARRUTHERS and a few cones, the plant remains consist almost entirely of pieces of petrified wood. By a careful study of the latter, STOPES is enabled to list 45 plant forms, comprising 1 thallophyte, 2 Filicales (*Weichselia* and *Tempskya*), 9 cycadophytes, 27 conifers, and 5 angiosperms. Notable features are the presence of angiosperms, the preponderance of conifers, and the scarcity of ferns. Angiosperms have been sparingly represented by leaf impressions in deposits of this age or slightly older, but these have been few in number and vague in character, while these forms of the Lower Greensand, although vague in their affinities, are well characterized.

The proportions of the different groups represented, upon which STOPES lays considerable stress in emphasizing the differences between this flora and other floras of the Lower Cretaceous, is due almost entirely, I believe, to the methods of preservation; that is to say, to differences in the physical conditions of deposition of the sediments. Coniferous remains usually predominate and ferns are scarcely represented in coarse marine deposits. Thus, in the Trinity beds of Texas, which are about the same age as the Lower Greensand, there is but one fern, while there are 8 cycadophytes and 11 conifers. On the other hand, in the Lakota beds of the Black Hills, which are continental deposits partially synchronous with the marine Trinity, there are 13 ferns and only 8 conifers.

The two features of the present work which are of greatest botanical interest are the interpretation of the coniferous woods and the careful description of the wood structure of five indubitable angiosperms of a relatively high degree of organization. While they are the oldest angiosperms whose anatomical features are known, they are in no way primitive or pro-angiospermic. The forms, of which three received preliminary treatment in 1912,[2] are named *Cantia arborescens*, *Woburnia porosa*, *Sabulia Scottii*, *Hythia Elgari*, and *Aptiana radiata*. No attempt is made to indicate their family relationships, largely because of our sadly inadequate knowledge of the anatomy of existing dicotyledons. The Coniferae enumerated include, in addition to various forms of *Pinostrobus*, *Cedrostrobus*, and *Abietites*, anatomical material representing a *Sequoia* (Taxodieae), *Protopiceoxylon* (1 sp.), *Pityoxylon* (3 spp.), and *Cedroxylon* (2 spp.) in the Abietineae; four species of *Cupressinoxylon* in the Cupressineae; *Taxoxylon* (1 sp.) and *Podocarpoxylon* (4 spp.) in the Taxaceae. No remains of Araucariaceae are recognized. This list of conifers is of especial interest to American botanists in connection with JEFFREY'S rather sweeping conclusions from his studies of material from the Upper Cretaceous, from which STOPES dissents, apparently on the basis of rather satisfactory evidence.

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[1] STOPES, MARIE C., Catalogue of the mesozoic plants in the British Museum. The cretaceous flora. Part II. London. 1915.

The present contribution also shows that BUCKLAND'S genus *Cycadeoidea* offers anatomical differences from the American forms usually described under that name. A new cycadophyte trunk is made the type of a new genus, *Colymbetes*. It is found in the lower part of the Lower Greensand and may have been derived mechanically from the underlying Wealden sediments. The climate of the Aptian is considered to have been less warm than that of the preceding Wealden.

The book on the whole is an exceedingly valuable contribution to our knowledge of fossil plants, particularly to that important part of the Lower Cretaceous represented in Britain by the Lower Greensand.—EDWARD W. BERRY.

Flora of New Zealand

Two quarto volumes illustrating the New Zealand flora have appeared under the editorship of T. F. CHEESEMAN, curator of the Auckland Museum, with the assistance of W. B. HEMSLEY.[3] The 250 plates are exceptionally good, having been drawn by Miss MATILDA SMITH of the Kew Herbarium, whose work in connection with the *Botanical Magazine* and *Icones Plantarum* has long been known. Accompanying each plate there is an account of the discovery and occurrence of the plant, as well as items of general interest. Since the technical descriptions are published in the *Manual of the New Zealand flora* (1906) they are not repeated in the *Illustrations*.

The problem of selecting approximately 265 plants to illustrate adequately such a flora as that of New Zealand can be appreciated. The main features of the flora, however, have been presented, and no important genus or group

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[2] STOPES, M. C., Phil. Trans. Roy. Soc. London. B **203**:75–100. *pls. 6–8.* 1912.

[3] CHEESEMAN, T. F., Illustrations of the New Zealand flora. 2 vols. 4to. *pls. 250.* Published under the authority of the government of New Zealand. Wellington. 1914.